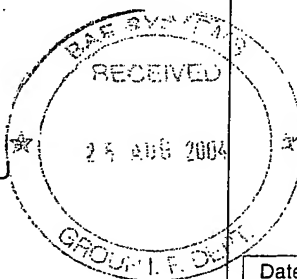


From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

BAE SYSTEMS plc  
GROUP IP DEPARTMENT  
Lancaster House, P.O. Box 87  
Farnborough Aerospace Centre  
Farnborough, Hampshire, GU14 6YU  
GRANDE BRETAGNE



PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year) 23.08.2004

Applicant's or agent's file reference  
XA1579

**IMPORTANT NOTIFICATION**

International application No.  
PCT/GB 03/04895

International filing date (day/month/year)  
12.11.2003

Priority date (day/month/year)  
20.11.2002

Applicant  
BAE SYSTEMS PLC et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:



European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

Authorized Officer

Püschel, S

Tel. +49 89 2399-5812





# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference XA1579	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/04895	International filing date (day/month/year) 12.11.2003	Priority date (day/month/year) 20.11.2002
International Patent Classification (IPC) or both national classification and IPC G01C19/56		
Applicant BAE SYSTEMS PLC et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of    sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I    <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II    <input type="checkbox"/> Priority</p> <p>III   <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV    <input type="checkbox"/> Lack of unity of invention</p> <p>V    <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI    <input type="checkbox"/> Certain documents cited</p> <p>VII   <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand  13.05.2004	Date of completion of this report  23.08.2004	
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Springer, O  Telephone No. +49 89 2399-2619 	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/04895

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-10 as originally filed

**Claims, Numbers**

1-4 as originally filed

**Drawings, Sheets**

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
  - ☐ the language of publication of the international application (under Rule 48.3(b)).
  - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
  - ☐ filed together with the international application in computer readable form.
  - ☐ furnished subsequently to this Authority in written form.
  - ☐ furnished subsequently to this Authority in computer readable form.
  - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
  - ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.
4. The amendments have resulted in the cancellation of:
- ☐ the description, pages:
  - ☐ the claims, Nos.:
  - ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/04895

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 4

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 4 are so unclear that no meaningful opinion could be formed (*specify*):

**see separate sheet**

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1 to 3
	No: Claims	
Inventive step (IS)	Yes: Claims	1 to 3
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1 to 3
	No: Claims	

**2. Citations and explanations**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/04895

---

**see separate sheet**

**Re Item III: Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

No examination of the claimed invention as to novelty, inventive step and industrial applicability is carried out for claim 4 because claim 4 relies on references to the drawings (see Rule 6.2(a) PCT and the PCT Preliminary Examination Guidelines, PCT/GL/IV, Chapter II, 4.10).

**Re Item V: Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement.**

**1. Technical Field:**

Method of calibrating bias drift with temperature over an operating temperature of a vibrating structure gyroscope.

**2. State of the Art:**

The following documents have been considered for the purposes of this report:

D1: S. K. Hong: "Compensation of nonlinear thermal bias drift of Resonant Rate Sensor using fuzzy logic"; Sensors and Actuators A, Elsevier Sequoia S.A.; vol. 78, no. 2-3; 14 December 1999

D2: GB-A-2 327 265; British Aerospace PLC; 20 January 1999

Document D1, which is considered as being the closest prior art to the subject-matter of independent claim 1, describes the compensation of nonlinear thermal bias drift of resonant rate sensors by using fuzzy logic. Document D2 discloses a method for reducing bias error in a vibrating structure gyroscope.

**3. Independent Claims:** Claim 1 (apparatus).

**4. Novelty and Inventive Step - Articles 33(2) and (3) PCT**

**4.1 Independent claim 1:**

The subject-matter of independent claim 1 differs from document D1 in that a response mode signal is separated into a real component induced by applied rotation

and a quadrature component which is an error term. Primary drive means voltage which corresponds to a change in quality factor, vibrating structure frequency, secondary drive quadrature component values which correspond to real component bias errors and secondary drive real component values which correspond to a change in bias are measured to calculate a set of bias calibration coefficients.

By using this calculated set of bias calibration coefficients, the objective technical problem is solved to improve the performance of the bias drift over temperature. Such a calculation is not known nor rendered obvious by the cited prior art. Hence, the subject-matter of present claim 1 is considered as being novel and inventive. The requirements of Article 33(2) and (3) PCT are fulfilled.

**4.2 Dependent Claims 2 and 3:**

The dependent claims 2 and 3 relate to preferred embodiments of the apparatus according to independent claim 1. Therefore, the requirements of Article 33(2) and (3) PCT are also fulfilled.

**5. Industrial Applicability - Article 33(4) PCT**

The invention as claimed in claims 1 to 3 is industrially applicable in the field of calibrating bias drift with temperature of vibrating structure gyroscopes.

**6. Certain defects in the international application**

The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in document D1 is not mentioned in the description, nor is this document identified therein.